## CLAIMS

We claim:

1. An element for reflecting or transmitting electromagnetic radiation comprising:

a grid of conductive strips and

a plurality of active regions, each of said active regions comprising a volume of chalcogenide material, said chalcogenide material having an amorphous state and a crystalline state, each of said active regions having a plurality of structural states, said structural states differing in the fractional crystallinity of said volume of chalcogenide material;

wherein said element receives incident electromagnetic radiation and modifies its phase to produce reflected or transmitted electromagnetic radiation.

2. The element of claim 1, wherein said grid of conductive strips includes intersecting conductive strips.

3. The element of claim 2, wherein said active regions are positioned at the intersection point of said intersecting conductive strips.

4. The element of claim 1, wherein said grid of conductive strips is periodic, said periodic grid having a periodic spacing in one or more directions.

5. The element of claim 4, wherein said periodic grid is a square or rectangular grid.

6. The element of claim 4, wherein said periodic grid is a triangular, hexagonal or diamond grid.

7. The element of claim 4, wherein said periodic spacing is no greater than the wavelength of said incident electromagnetic radiation.

8. The element of claim 1, wherein said conductive strips include conductive segments, said active regions interconnecting said conductive segments, each of said interconnecting active regions interconnecting at least two of said conductive segments.

9. The element of claim 8, wherein each of said interconnecting active regions interconnects at least three of said conductive segments.

10. The element of claim 1, wherein the width of each of said conductive strips is non-uniform.

11. The element of claim 10, wherein said non-uniform conductive strips include conductive segments interconnected by said active regions and said non-uniformity of width occurs in said conductive segments.

12. The element of claim 1, wherein the width of each of said conductive strips is uniform and said grid includes conductive strips having two or more widths.

13. The element of claim 1, wherein said active regions are interposed between two or more of said conductive strips.

14. The element of claim 1, wherein said active regions are periodically positioned within said element.

15. The element of claim 1, wherein said active regions are sub-wavelength, said sub-wavelength active regions having at least one cross-sectional dimension that is less than the wavelength of said incident electromagnetic radiation.

16. The element of claim 1, wherein said plurality of active regions includes at least three of said structural states.

17. The element of claim 1, wherein at least one of said active regions is in a partially crystalline state.

18. The element of claim 1, wherein said plurality of active regions includes a crystallinity gradient, said crystallinity gradient extending over at least two of said discrete active regions, said active regions within said crystallinity gradient including at least two of said structural states.

19. The element of claim 18, wherein said element includes at least two of said crystallinity gradients.

20. The element of claim 19, wherein said crystallinity gradients extend in at least two non-parallel directions.

21. The element of claim 1, wherein said element includes domains, each of said domains comprising two or more of said active regions, said domains forming a discrete phase taper.

22. The element of claim 21, wherein said domains form a discrete phase taper in two or more directions.

23. The element of claim 21, wherein said domains are sub-wavelength domains.

24. The element of claim 21, wherein said sub-wavelength domains are substantially non-diffracting.

25. The element of claim 21, wherein said domains are of substantially the same size.

26. The element of claim 21, wherein said domains are square.

27. The element of claim 21, wherein said domains are contiguous.

28. The element of claim 21, wherein said domains are periodically arranged in said element.

29. The element of claim 21, wherein said two or more of said active regions within said domains are arranged periodically within said domains.

30. The element of claim 1, wherein said element has a dimension that is at least twice the wavelength of said incident electromagnetic radiation.

31. The element of claim 30, wherein said dimension of said element is no greater than quintuple the wavelength of said incident electromagnetic radiation.

32. The element of claim 1, wherein said incident electromagnetic radiation has a frequency in the terahertz range.

33. The element of claim 1, wherein said reflected or transmitted electromagnetic radiation is directed in a non-specular direction or a non-refractive direction.

34. The element of claim 1, wherein said reflected or transmitted electromagnetic radiation is focused or defocused.

35. The element of claim 1, wherein said chalcogenide material comprises Te or Se.

36. The element of claim 35, wherein said chalcogenide material further includes a chemical element selected from the group consisting of In, Ag, Sb, and Ge.

37. The element of claim 1 further comprising a dielectric substrate, wherein said element is supported by said dielectric substrate.

38. The element of claim 1 further comprising a first and second dielectric material, wherein said element is interposed between said first and second dielectric materials.

39. A grid combination for reflecting or transmitting electromagnetic radiation, said combination comprising:

a first element for reflecting or transmitting electromagnetic radiation,

a second element for reflecting or transmitting electromagnetic radiation, and

a dielectric material;

wherein said first and second elements are elements according to claim 1 and said dielectric material is interposed between said first and second elements.